

[0054]). Thus, Ueda I only considers to restrain the operation of the purge valve and does not disclose the dilution of a fuel gas discharged from the fuel cell with an oxidizing gas.

Accordingly, Ueda I does not disclose or suggest to change the supplied quantity of the oxidizing gas for dilution when an abnormality of the discharge means is detected, as recited in claims 1 and 10.

In addition, the inventions recited in claims 1 and 10 have advantages not recognized by the prior art. For example, when the discharge means is broken or does not work properly, normally it is impossible to restrain the hydrogen concentration by controlling the discharge means. However, in the present invention, even if the discharge means is broken the hydrogen concentration can be decreased by increasing the supplied quantity of the oxidizing gas for dilution without controlling the discharge means because the oxidizing gas is added to the discharged fuel gas. On the other hand, the applied prior art is not designed to solve the problems caused by abnormality happened to the discharge means and the hydrogen concentration increases when the discharge means is broken.

Thus, claim 1 and 10 are patentable over Ueda I. Further, claims 2-7 are also patentable for at least the same reasons as discussed above, as well as for the additional features they recite. Applicant respectfully requests withdrawal of the rejection.

Claims 8 and 9 are rejected under 35 U.S.C. §103(a) as being unpatentable by U.S. Ueda I in view of U.S. Patent No. 6,864,003 (Ueda II). Applicant respectfully traverses the rejection.

In particular, Ueda I does not disclose at least the feature of "oxidizing gas supply increase means for increasing the supplied quantity of the oxidizing gas when an abnormality of the purge valve is detected," as recited in claim 8. As discussed above, the object of Ueda I is to deal with limited dilution performance of the purged hydrogen device (10) (paragraphs [0009] and [0045]). To this end, Ueda I discloses that the hydrogen concentration is

estimated at the outlet (12b) of the purged hydrogen dilution chamber (12) and when hydrogen concentration reaches a predetermined concentration, operation of the purge valve (6) is restrained so that the amount of the purged hydrogen gas purged from the fuel cell stack is decreased (paragraph [0054]). Accordingly, Ueda I does not detect the abnormality of the purge valve or increasing the supplied quantity of the oxidizing gas when the abnormality of the purge valve is detected. Ueda II discloses to detect the failure in the hydrogen purge valve (Abstract). However, in Ueda II, only alarm unit is generated when failure in the hydrogen purge valve is detected (Abstract) and no oxidizing gas is added to the fuel gas discharged from the fuel cell. Thus, Ueda II fails to make up for the deficiency of Ueda I.


In addition, the invention recited in claim 8 advantages not recognized by the prior art. For example, when the purge valve is broken or does not work properly, normally it is impossible to restrain the hydrogen concentration by controlling the purge valve. However, in the present invention, even if the purge valve is broken the hydrogen concentration can be decreased by increasing the supplied quantity of the oxidizing gas for dilution to the discharged fuel cell without controlling the purge valve. On the other hand, the applied prior art is not designed to solve the problems caused by abnormality happened to the purge valve and the hydrogen concentration increases when the purge valve is broken.

Thus, claim 8 is patentable over Ueda I and Ueda II. Further, claims 9 is also patentable for at least the same reasons as discussed above, as well as for the additional features it recites. Applicant respectfully requests withdrawal of the rejection.

In view of at least the foregoing, Applicant respectfully submits that this application is in condition for allowance. Applicant earnestly solicits favorable reconsideration and prompt allowance of the pending claims.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, Applicant invites the Examiner to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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